

What is claimed is:

1. A field emission device comprising:

an anode plate, an anode electrode and a phosphor layer are formed inside of the anode plate;

5 a cathode plate, a plurality of electron emission sources for emitting electrons which correspond to the phosphor layer and a gate electrode having gate holes through which the electrons pass are formed inside of the cathode plate;

a mesh grid which is provided between the cathode plate and the anode plate and in which a plurality of electron-controlling holes are formed in a region
10 corresponding to the gate holes;

a spacer which supports the mesh grid between the anode plate and the mesh grid; and

insulating layers which are formed on both sides of the mesh grid and have windows through which the plurality of electron-controlling holes are exposed and
15 which correspond to a region where the plurality of electron-controlling holes are formed.

2. The field emission device of claim 1, wherein the mesh grid has a thickness smaller than that of each of the insulating layers.

3. The field emission device of claim 1, wherein the number of the electron-controlling holes formed inside of one window is larger than the number of the gate holes corresponding to the same window.

4. The field emission device of claim 2, wherein the number of the electron-controlling holes formed inside of one window is larger than the number of the gate holes corresponding to the same window.

5. The field emission device of claim 1, wherein the mesh grid is spaced
30 apart from the anode plate and the cathode plate by a predetermined gap.